



*The rear of this house was inaccessible and uninvolved upon F.D. arrival. By the time the fire reached the back, it had burned 8-10 minutes, creating a second point of origin.*

## Effective and Affective Fire Scene Investigation

**A good fire investigator doesn't operate independently of the responding fire department. It's important to interview fire suppression forces as well as civilian witnesses to find out how fighting the fire could have affected important evidence.**

**By JOHN ORR**  
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The fire investigator is almost always the last one called to a fire scene. During the daylight hours, the investigator is usually busy with inspections, interviewing, meetings and other necessary routine. At night he is usually home.

In any case, the investigator is not

likely to be monitoring his radio and is usually unaware of a working fire until someone at the scene requests him. Then, his arrival is invariably well after the fire is knocked down and sometimes after many units and witnesses have left the scene.

Whether the fire is accidental or incendiary, knowledge of what firefighting tactics were employed to suppress it is essential. Was there flame showing on arrival or just smoke?

Was an exterior or an aggressive interior attack used? Was part of the fire allowed to burn while another front was aggressively fought to protect exposures?

To answer these questions, it is essential to contact first-in firefighters, police officers and civilians to determine fire conditions prior to and,

most importantly, during firefighting operations.

The reason why knowledge of all of this is so important is to isolate the fire's area or areas of origin. A fire can be easily misread if there is not a thorough understanding of the firefighting tactics and strategy employed to suppress it.

Suppression techniques impact such questions as: Was there a second point of origin or did a handline spread heat and smoke ahead of the main fire and start an additional room on fire? Sometimes, if this handline is redirected or moved out of the building, a spot fire may develop that does substantial damage in a different area, creating what appears to be a secondary point of origin. Burn time must therefore be carefully calculated and considered before a final determination can be made.

Consider this situation: A late-morning fire is reported in a single-family dwelling. Located in a close-knit neighborhood, it is detected early.



Responding companies see a large "header" of thick black smoke and, upon arrival, have difficulty reaching the structure up a long driveway. They radio back that the fire is "fully involved."

The fire is eventually attacked from the front side, where firefighters see heavy flame. A second alarm is called, primarily for manpower, as the flames impinge on nearby brush. Unknown to first alarm companies, however, the rear of the structure is not involved yet.

As firefighters enter the front door, they are met with heavy fire. They succeed in advancing 10-to-15-foot inside before conditions deteriorate and a small explosion occurs when a pressurized air conditioning component fails from heat. They back out.



*Fire in under-construction restaurant originated just inside this door, to the left. Careless disposal of wood-stain wiping cloths was the cause. Note plumbing fixtures at lower left.*

Fortunately, a second attack is successful and the fire is knocked down with the assistance of second-alarm personnel.

A newly-hired fire investigator responds with the first-in units and photographs both front and back sides of the fire as it progressed. He enters the living room and finds a two-and-one-half gallon gasoline can and definite substantiating evidence of flammable liquid involvement.

The senior investigator then arrives and quickly concurs with the rookie's findings. He then takes the determi-



*Parapets and facades can "protect" the fire, letting it continue to burn unchecked until reached by handlines. Longer burning will create confusing burn patterns.*



*Fire scene after overhaul and extinguishment. Wood siding, now removed, shows "V" pattern pointing to plumbing fixtures as point of origin. Firefighting tactics created this unusual situation, but adequate documentation and investigation prevented an erroneous conclusion.*

nation one step further by stating that the kitchen and rear bedroom were also points of origin. This statement is made without discussion of burn time, fire attack or other factors observed by first-in firefighters.

The considerate, tactful, rookie investigator quickly takes the senior man aside. He explains that he had personally watched the rear of the structure and photographed it intact

as the fire traveled into it.

Due to access problems caused by the intense fire itself as well as manpower limitations, the fire at the back side of the house ran unchecked for eight to 12 minutes before water was applied, he says. In the meantime, the front fire was knocked down and held at bay while the rear burned furiously.

A later confession by the arsonist

*Continued on next page*



# INVESTIGATE . . .

*Continued from page 31*

himself also substantiates that gasoline was poured only in the living room, not in the kitchen and bedroom.

An investigator's credibility, and expertise can be seriously challenged by a missed call such as this example. The investigator, even though he has years of experience, will be judged by what he originally wrote down.

Often, some months down the line when a suspect is arrested, his confession may contradict important parts of the investigator's report. This can be devastating to a prosecution—and an investigator's credibility.

Preventing this sorry circumstance can be as simple as taking the time to contact the incident commander and ask how the fire was attacked. The IC will have the knowledge to enlighten the investigator.

For instance, there may be pockets of fire that continued to burn because they were inaccessible to handlines or heavy streams, but it is sometimes difficult to make this kind of determination without the benefit of a first-hand witness.

Once a building has collapsed, the

roof structure may cover burning stock or furnishings. This hidden burning may continue long enough to burn through floors and give the appearance of an accelerated fire.

In much the same way, parapets may make overhead heavy streams ineffective, since they can prevent penetration of the stream into the building nearest the apparatus. Knowing the placement of apparatus will assist the investigator in explaining—and countering—questions about unusual burning characteristics that may be interpreted as indication of an intentional fire.

Major fires will inevitably be examined by insurance investigators who arrive days or weeks after the fire. They will deal with fire scenes that have been overhauled, investigated, overhauled again and possibly re-investigated.

The evidence they are confronted with will be, to say the least, confusing. Unexplained holes in floors, window glass crazing contradictory to burn damage and missing items could possibly point to an arson even if the fire is accidental.

However, the department investigator initially documents and photo-

graphs the fire scene, there will be little need to be concerned about contradictory "calls" on a fire's origin. The investigator, be he public or private, will quickly demonstrate the value of knowing how firefighting tactics affect a fire's spread.

For example, say a million-dollar fire occurs in an under-construction restaurant in the late afternoon hours of a weekday in July. A fire investigator arrives with the first-in units and photographs the entire scene, including fireground operation.

The fire is later determined to have been caused by poor housekeeping and improper disposal of wood-stain wiping cloths in a paint-storage area. Thus, liability appears to settle on the painting sub-contractor.

However, the private investigator hired by the painter's insurance company determines that a plumber was responsible. Deep burning inside a wall in the area of origin was noted by the private investigator. At the base of this burn was a faucet for a recently-installed outdoor mop sink.

Although the plumber said he had not been working in that area on the day of the fire, some reasonable doubt now exists, and civil liabilities could



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thereby be in question.

The private investigator meets with the fire department and is told the sequence causing the unusual burn pattern. Early fire photographs clearly show initial fire attack through a door next to the mop sink, where firefighters concentrated on the heaviest volume of fire and chased it into the building.

Fire had burned through the dry-wall inside the room of origin at the top and allowed burning material to fall through to the faucet and piping assembly. This burning material continued to eat through the exterior wall, where it was photographed with exterior siding in place. Only small flame was visible high on the wall. Firefighters ignored this minor problem until 20-to-25 minutes into the fire.

The major portion of the fire was

knocked down, then the fire inside the wall was attacked in the overhaul stages. The wood siding was removed to reach this fire. Afterwards, the siding was placed 30 feet from the building in a debris pile—thus the private investigator was unable to compare burn patterns.

In this case, had it not been immediately recorded by the investigator, firefighters might not have later remembered the sequence of their firefighting efforts clearly enough to clarify the issue. Thus, responsibility would have been misplaced, and a needless lawsuit would result.

Remember these tips: Check with the incident commander upon arrival. Note firefighting as it takes place and apparatus placement. Take photographs of the incident commander's diagrams and actual locations of apparatus. Take notes on points of entry

of each company.

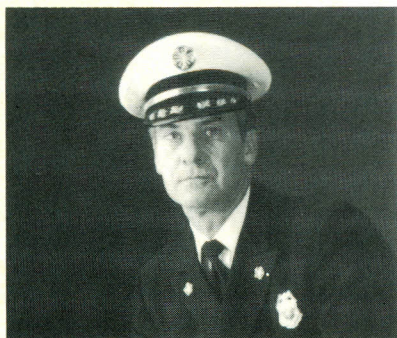
At major fires, have each company commander write down a short synopsis of his crew's activities. Attend any critiques to further expand your knowledge of the firefighting tactics used.

Many investigators have been "off the line" for many years, and may not be aware of their department's current tactics and strategies. Straight vs fog streams is a continuing controversy, and the use of these can have a definite bearing on the outcome of an investigation. Police investigators, especially, should have a good working knowledge of firefighting.

Above all, remain flexible and gather all information available before making a final determination on the cause and origin of any fire.

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## WHO'S WHO



*Retiring Clackamas Chief Everett Buttolph*

**Chief Everett Buttolph** has retired after nearly 31 years in the fire service in **Clackamas County, Oregon**. Buttolph, a founding member and former president of the Oregon Fire Marshal's Association, has been Clackamas's chief since 1976.

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**Ward Bohner, executive director emeritus** of the New York State Association of Fire Chiefs, has passed away. A scholarship is being set up in his name. Donations to this may be sent to the Ward and Janice Bohner Scholarship Fund, NYSAFC, P.O. Box 445, Kinderhook, NY 12106.

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**Anaheim, CA** has just appointed its youngest **fire chief** ever, 34-year-old **Jeff Bowman**. Bowman, a 13-year veteran of the fire service, will oversee a 10-station department with 204

firefighters and 29 administrative personnel.

The city believes that Bowman just may be the youngest fire chief of any large metropolitan city in the country. Any challengers out there?

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*Kern County's Chief Thomas McCarthy*

**Thomas P. McCarthy** has been appointed **fire chief** for the **Kern County (CA) Fire Department**. McCarthy began his career with the county in 1958, and has the distinction of being the first Kern County firefighter to attend the National Fire Academy in Maryland.

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Another new appointment is that of AFJ Correspondent **David H. Cowardin**, who's now **chief** of the **29 Palms (CA) Fire Department**. Cowardin, who authors the AFJ Inci-

dent Command System articles, is a 25-year fire service veteran, California Master Fire Service Instructor and has a PhD in Fire Science. He was formerly operations chief of the La Habra Heights (CA) Fire Department.

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A recent retiree is **Chief William Stamm** of the **Milwaukee (WI) Fire Department**. Stamm, who was instrumental in forming the AS program in fire technology at Milwaukee Area Technical College, had served the department as chief for 15 years. His fire service career spanned 45 years.

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*Now Deputy Chief in San Jose: Ronald Delgado*

The **San Jose (CA) Fire Department** has a new **deputy chief**: 24-year department member **Ronald A. Delgado**. In his new position, Delgado will oversee the administration and operation of the department's Bureau of Training.